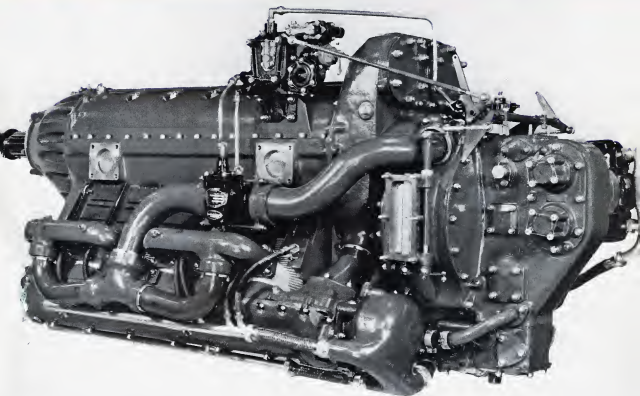


Aviation News

McGraw-Hill Publishing Company, Inc.

OCTOBER 16, 1944



Ranger's New 700 H. P. Lightweight Engine: Weighing only 780 pounds, Ranger's new compact power plant has many applications for post-war commercial aircraft, especially in the feeder airline field. This new photo shows detail of three-quarter rear view. The engine is a 12-cylinder V-type inverted, inline and air-cooled.

World Air Power Urged to Enforce Peace

Would not be force in being, but individual units committed to action when needed; Senate would approve assignment of U. S. unit.....Page 7

PAA Data on 3 Plane Types for Latin America Use

Predicts New York-to-Buenos Aires round trip fare as low as \$342.90 with DC-7's, modified Constellations and "Type 12" aircraft.....Page 36

Return of Last 26 Planes Gives More Seats Than Before

New allotment increases capacity to 6,205 passengers, compared with 6,145 before U. S. requisitioned craft.....Page 34

Jap Steel Industry Has 'Priority' in Super Missions

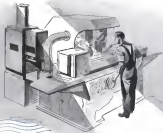
Vulnerability of Nipponese heavy industry makes plants strategic target; seven recent missions were against enemy steel centers.....Page 21

Four-Year Non-Engineering Course Opens at Miami U.

Three basic curricula established stress various phases of vocational training in aeronautics; 34 freshmen, including 6 war veterans, enroll..Page 13

Halting Tendencies Revealed in Stocks of Airlines

Prices of air transport equities pushed upward to points where yields are extremely low, based more on potential earning power.....Page 32



Precipitron "INHALES" OIL MIST TO END FIRE HAZARD . . . SALVAGE COOLANT

A NEW PRECIPITRON FOR CLEANING AIR



Charged particles are drawn to an oppositely charged gas, then collected on plates.

Power Pack provides the voltage to ionize the particles in the air, and also operates the Collector Plates.

An electromagnet holds the particles in the Precipitron. As they pass, they are charged and oil mist is drawn into the air.

Mechanical filter in the air stream removes dust and debris.

Drain at bottom of tank removes oil and returns it to the system.

Air duct from machine and through the air stream which collects the oil mist.

Oil mist coated by high-speed machine tools has created a dangerous hazard in many plants. The oil mist collects on lighting fixtures, has dust, wiring and floors, creating a serious fire and personnel safety hazard.

Precipitron®—the Westinghouse Electronic Air Cleaner—ends this threat. The oil mist is captured right at the machine . . . the air thoroughly cleaned for recirculation . . . the cooling oil salvaged for re-use. And the salvage possibilities can be surprising.

Because it cleans air electronically, Precipitron is able to trap air-borne particles as small as 1/250,000 of an inch in diameter . . . it removes 90% more dirt particles from the air than mechanical air cleaners.

Precipitron is available for either single or multiple room installations. Operating cost is low and maintenance simple. Westinghouse engineers will be glad to show you how Precipitron will end oil mist hazards in your plant. For more information or engineering assistance write Westinghouse Electric & Mfg. Co., Dept. J-N, East Pittsburgh, Pa.

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Westinghouse Precipitron the Electronic Air Cleaner
MADE IN THE U.S.A. OTHER COUNTRIES

THE AVIATION NEWS

Washington Observer

BRITAIN MOVES—Importance attached by Britain to future air travel and transport fuel underscored by a recent appointment of Viscount Swinton, government trade and aviation specialist as Civil Aviation Minister with cabinet rank and was not overlooked by high officials in Washington. The move took an additional significance when it came about on the eve of the international conference on civil aviation which will open in the United States Nov. 1.

SWINTON'S POSITION—One point not overlooked in Washington was the probability that Viscount Swinton will head the British delegation to the international conference and that the United States has no officer of comparable rank. A. A. Berle, Assistant Secretary of State, possibly will head the United States delegation. Britain is moving to protect her interests in the post-war aviation sweepstakes.

BRITAIN DETERMINED—Appointment of Swinton reflected in some degree the worried gloomiest mood in many directions out of London recently, particularly at American plans for covering the globe with serial routes and at Russia's undiminished post-war aviation program. There had been some criticism of lack of policy in London, even as there has been in Washington. Whatever works out of the British plan, the objective was voiced by Sir Archibald Sinclair, air minister, who said Britain means to keep her place in the first flight of international air transport. That is giving Washington something to think about.

AIRLINE ALLOCATION PLAN ENDS—Current allocation to the airlines of 24 DC-3 type planes from the military marks the last step to go back under the old allocation method. Under this plan, CAB and the War Department's military transport committee worked together to determine which carriers should receive what planes. Hereafter, deciding agencies will be Surplus War Property Administration and an interdepartmental working committee representing State, War Navy and Commerce departments, CAB, DPC, WPA, and PEA.

ALLOCATION ANGLE—Aviation people in Washington note that the last return brings the number of airline units to the 300 ceiling and given the carriers approximately the seating capacity they had early in 1942 when the Army took over 166 of their planes. Reports are that the Army now is reluctant to lift the ceiling,

but feeling in the industry is that it will be lifted when and if more phases of the commercial transport type become available.

CANADIAN RECONVERSION CHIEF—Ministries and Supply Minister C. D. Howe, who is also responsible for civil aviation in Canada as deputy-minister from his former post of Minister of Transport, is expected here to be Minister of Reconstruction when that department is established. He is a believer in public ownership of major utilities operating on a national basis, as the Trans-Canada Air Lines, with private enterprise operating in regional air transport fields.



Election Day in the Pacific

SURPLUS BOARD—The new Surplus Property Board will have a reconstruction job to do before it can get under way. Many of the top executives are ready to follow W. L. Clayton out, staying just long enough to turn over their work in the new board. Still others are willing to see what the complexion of the board will be before deciding.

PERSONNEL DIFFICULTY—One of the worst features of the SPS transfer is that it will be difficult to recruit businessmen for surplus disposal. Board probably will have to draw from



Just zip it up . . . to seal liquids and gases under pressure!

Perhaps you can use this new
B. F. Goodrich PRESSURE SEALING ZIPPER

ONE ENGINEER calls it the "pucker force that doesn't leak." That's the right name for this recent product of B. F. Goodrich research in "Pressure Sealing Zipper."

B. F. Goodrich engineers have taken a slide fastener and added a precision-molded rubber seal that opens and closes with the fastener. This seal is a unique arrangement of overlapping rubber lips which provides an effective and complete closure from mere pressure to pressures up to the structural strength of the fastener itself.

These zippers are effective in a wide

temperature range. The rubber won't crack when bent at -70°F. nor become soft at 150°F. Weatherability is good; aging tests have shown pressure comparable in part possible for this type of product.

One separating type and two non-separating types of these zippers are available. One seals for entire length but is open at both ends; another is closed at bottom, seals along entire length, and is open at top; third seals along entire length and at top and bottom.

More interesting uses accompanied

and general, have already been suggested for these unusual fasteners. Among them are airtight gap seals, exposure suit closures, weather seals, pressure duct seals and many others. Perhaps you have a use for B. F. Goodrich Pressure Sealing Zippers. Our engineers will be glad to discuss your application. The B. F. Goodrich Company, Automated Division, Akron, Ohio.



World Air Power Urged to Enforce Peace Under 11-Nation Council

Would not be force in being, but individual units committed to action when needed; Senate would approve assignment of U. S. unit to international force.

By WILLIAM G. KEY

An international air force—not a force in being, but contingents of national air forces held available for immediate action—would form the bulwark of the 11-power Security Council of the United Nations proposed as a result of the Dumbarton Oaks conference.

Disclosure of the proposals indicates the position of the United States Senate has been taken into consideration in framing the world air force section. It was leaked from the general international police force provisions and dealt with on a separate basis. And while an international police force is provided, the air force would consti-

tute the primary enforcement weapon available with any speed to the Security Council.

Subject to Approval—The paragraph providing that air force units be "held immediately available" for international action within the composition of these forces contingent on another paragraph. This specifies that agreement governing numbers and types of forces would be subject to approval of the Security Council and "modification by the regulatory states in accordance with their constitutional processes."

Under this provision, the Senate would ratify the composition of air force units assigned to the inter-

national air force, and these units would then be held "immediately available" for use at the direction of the Security Council and the Military Staff Committee assigned to the Council. The Military Staff Committee would be composed of the chiefs of staff of the permanent members of the Security Council—the great powers of the United States, Great Britain, Russia, China and France.

(This provision for membership on the Military Staff Committee of the chief of staff of a power creates a need for action on the part of that country, which does not have a permanent chief of staff. Admiral Leahy holds that post by executive order of the President and as yet no provision has been made by Congress to create an overall chief of staff by legislation.)

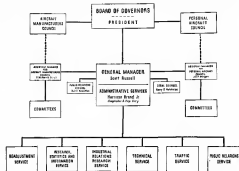
Transitional Police Force—The international air force designed to police Germany after her defeat (AVIATION NEWS, Sept. 11, page 7) would function under transitional provisions in the United Nations organization proposal. Under this,

New Organization Chart of Aeronautical Chamber of Commerce

Policy

Operations

Services





NEW BRITISH FLYING TEST RIG:

Photo structures have been removed from Britain's Folland Gull, designed and built exclusively to fly-test various types of power plants. The 3-place plane is equipped with special outboard installation doors to a Bristol Hercules engine.

The Four-Power Declaration of Moscow would function to maintain international peace and security until the international force would come into being under the new world organization. It would not be necessary, under

the Dumbarton Oaks agreement, for an international air force to be organized as a world air force. Action would be carried out by "all the members in cooperation" or "by some of them as the Security Council may determine." Provision is made for regional agreements and regional organizations for action within the framework of the United Nations agreement. Thus the Inter-American Defense Commission could be maintained and implemented for regional action.

Termination Form

Standard forms to be used for settlement of terminated fixed-price supply contracts, approved by all government agencies concerned are now available from any government contracting agency.

The new standard forms will replace those previously issued by the War and Navy departments and are expected to speed settlement of terminated war contracts.

► **Form 1**—The standard contract settlement proposal (Form 1) provides for filing of virtually any type of settlement claim and also allows for progressive inventory report. Exceptions are taken care of by Form 1-A for use when the contractor proposes to dispose or retain all inventory allocable to the terminated portion of the contract and the net amount of the proposed settlement is less than \$1,000, and Form 1-B for use for settlement proposal on total cost basis.

Forms for inventory schedules are provided as follows: metals (all mill product) Form 2-A, new materials (other than metals) Form 2-B, work-in-process, Form 2-C, tools, dies, jigs, fixtures, etc., Form 2-D. In cases where such scheduling data are required, a schedule of accounting information (Form 3) is available.

3 New Regulations Issued by OCS

Rules designed to clarify negotiation methods and speed settlements.

Office of Contract Settlement has progressed farther along the orderly path of war contract termination settlement with the issuance of three new regulations in addition to the four discussed in AVIATION NEWS last week.

Previous regulations dealt with T-terms, part payments, pre-termination agreements, and provision for the contractor either to buy the government-owned equipment in his plant or have it removed within 60 days after request for removal, except where necessary for other war purposes.

► **Follows Industry Recommendation**—New regulation No. 1 follows industry recommendations regarding the aircraft industry and basically provides for exercise of sound business judgment in settlements. In order to speed settlement of terminated war contracts.

These regulations deal with fair compensation and determine that the prime contract and subcontract termination articles previously authorized by orders of the Office of War Mobilization conform to the Contract Settlement Act of 1944. It also establishes further the standards and methods to be used in negotiation of settlement by agreement under the act in those cases in which settlement is made on the basis of costs and profits.

► **Negotiated Settlement**—The Contract Settlement Act was generally interpreted by the aircraft industry as providing for negotiated settlement, but some concern has been expressed by industry executives that settlement by negotiation, interest and accounting for parts and pieces might defeat the more favored procedure. The problem, as expressed by some industry leaders, was one of administration rather than legislation and it appeared likely the new regulations might aid in solving this problem.

New Regulation No. 5 covers the statement of cost principles forming a part of the uniform termination article for fixed-price supply contracts. It was found that certain provisions were impracticable and they were eliminated as were others found necessary to protect the interests of the government in view of recent income tax regulations.

► **Eliminations**—Eliminated was a

provision that loss on special facilities, with respect to which a contractor was entitled to reimbursement, shall not exceed the adjusted basis of such facility for federal income tax purposes immediately prior to the date of a contract termination.

Another elimination was the provision that costs which, as evidenced by accounting statements submitted in renegotiation under the Defense Appropriation Act of 1942, were charged off during a period covered by previous renegotiation, may not be subsequently included in the termination settlement if a refund was made for the period, or to the extent that such charging off is shown to avoid such refund.

It was reported that nothing comparable to this provision is applicable to completed contracts and its administration in connection with terminated contracts was found unworkable.

New regulation No. 6 delegates authority to all war contractors to make final settlement of net claims submitted to them for their \$1,000 where claimant keeps or disposes of the inventory—G & H.

Delivery of 10,001st B-17 Pooling Fear

Went Coast production of Flying Fortress through cooperation of Boeing, Douglas and Lockheed, hailed as remarkable industrial achievement.

Delivery of the 10,001st Flying Fortress on the West Coast was more than an industry production achievement—it is applauded as one of the most successful and unique war production pools in industrial history and was participated in by Boeing, Douglas and Lockheed.

Of the 10,001 Boeing Flying Fortress delivery since Pearl Harbor, 6,143 have been built by Boeing, 1,832 by Douglas and 1,826 by Lockheed. These three aircraft companies were brought together in May, 1941, in an unprecedented production pool organized to meet Army's demand for Flying Fortresses. It was pointed to as an outstanding example of the aircraft industry's willingness to put patriotic duty above its own interests.

► **Started by Boeing**—Boeing had been the sole producer of Flying Fortresses prior to this date, the first of which made its original flight in 1935. Under the pre-

arrangement, Boeing was charged with providing the engineering data and production information to Douglas and Lockheed. With the airplane to be built at three separate plants and with hundreds of subcontractors and suppliers furnishing subassemblies and parts

that had to be interchangeable, a central control organization for operation of the pool was a necessity.



FIRST PHOTOS OF FAIRCHILD C-42s

The new Fairchild C-42 cargo plane is being test flown to determine its full capabilities. The model cargo ship, engineered to carry guns, tanks, ammunition, supplies or troops over long distances, was built at the Rochester, N.Y., plant and marks Fairchild's re-entry into the large plane field. Fairchild 10 years ago built the C-31, first plane designed for military cargo. Around this point, Fairchild chief engineer, is the designer of the radial-type plane, with 164-foot wing span and 76-foot fuselage, mounted between twin-booms extending from the main engine nacelles. The plane is in the 36,000-pound class, with about twice the capacity of the DC-3, and has tremendous range for a transport plane.



each of the participating companies. This committee has met regularly to coordinate production problems.

His success was attested to when a similar committee was set up for national-wide production program of the Boeing B-36 Superfortress, with Boeing again providing engineering and production data in other firms building the Boeing product.

Wright Developing Turbine Type Engine

Vaughan predicts 10,000 hp. unit within next decade.

Disclosure that Wright Aeronautical Corp. is entering the field of turbine type aircraft power plants is made by G. W. Vaughan, president in connection with the firm's 25th anniversary last week.

Vaughan says the corporation is looking forward to a new phase in power plant development with vision of a 10,000 hp. gas turbine engine within the next decade and he forecasts that the turbine form of power may advance aviation as much as did the radial.

Working on Jet Propulsion.—Vaughan and Wright's entry into this field was not a sudden change in the course of their engine development program but rather a logical and long considered step.

He said that, consequently, the efforts toward development of the engine followed progressive improvement of radial type engine. Wright engineers have been working in the related fields of jet propulsion and gas turbine engines.

Vaughan says it is not their purpose to switch from the reciprocating engine to the gas turbine radial. The reciprocating engine is the radial air-cooled form, he believes, will undoubtedly continue to be the leading power plant for air transport for some years to come in every category except high speed, high altitude and long range operations.

Seen as Next Step.—The gas turbine, in Vaughan's opinion, does represent the logical next step. An aircraft engine manufacturer such as Wright, he said, must be prepared with equipment and design power for light load, short range work; it must have engines in the middle horsepower ranges and in the range above 3,000 hp.

With the trend in aviation toward lower high altitude, the aircraft gas turbine fits into the trend better than the current reciprocating engine, he says, be-

cause the inherent characteristics of the gas turbine enables it to attain its highest efficiency at high speed and high altitude.

Used with Propeller.—Vaughan indicates that one type of Wright gas turbine will be an engine of high power built to drive a propeller. This is a departure from previously announced types of the jet driven engine, which are designed to produce power by direct application of the jet to the surrounding atmosphere.

While the principle of the engine has been known to engineers for years, only recently, Vaughan says, has research produced solutions to certain metallurgical problems which are the key to the whole development program.

Market Research Standards Studied

AMA committee of specialists, headed by E. E. Lothrop, former chief of AECIA department, to report at Chicago meeting next month.

Standards for aviation market research are being studied by a committee of the American Marketing Association composed of specialists closely associated with the industry.

Chairman of the committee is E. E. Lothrop, formerly head of the research department of the American Chamber of Commerce and now in charge of instrument and component plants disposed for the surplus War Aircraft Division of the Defense Plant Corp.

The aviation committee was organized last spring, and its first report as a committee to the AMA will be made at the annual convention in Chicago Nov. 26 and Dec. 1. The committee will be held to which sales managers and market research specialists of aircraft manufacturing companies and airlines will be invited.

Continental Motors Corp. plant at Garland, near Dallas, was labeled to produce aircraft engines as a part of the war program, will continue as a post-war industry, according to Jack Reice, president, who said the plant will employ about 1,800 workers.

Reice said the company was in the power plant business and that power always will be needed. He and the Gaskard plant would be used to serve the Southwest and that the personnel trained for the war output would be used for similar post-war production.

Director of Technology; E. H. Carra, Jr., sales research engineer, Wright Aeronautical Corp.; L. J. Smith, market analyst, Wright Aeronautical; Allen F. Kent, executive assistant in charge of economic research, Consolidated Value Aircraft Corp.; Dr. Richard H. Nash, special assistant to the president in charge of planning, All American Aviation, Inc.; Dr. John Fendrick, professor of transportation and industry, University of Texas; J. H. Sargent, acting manager of market development, Western Electric Manufacturing Co.; C. O. Peterson, chief engineer, air systems division, Railway Express Agency; A. T. Hapke, Jr., manager, market research, Republic Aviation Corp.; Alan Passon, Department of Business Research, surplus division, Curtiss-Wright Corp.; Spencer A. Larson, director of air cargo research and associate professor of business administration, Wayne University, Detroit; and Henry Moore, director of research, Biffatt Airways.

Data to Be Changed.—Lothrop says the AMA aviation committee intends to provide a mechanism for the exchange of information relative to marketing and distribution problems of the industry and to exchange information with other groups in the AMA, which is composed of market specialists in industry and education—relative to the effect of aviation, as a transportation medium, on marketing as a whole.

AMA committees of similar scope in the past have accomplished much in establishment of standards of market research by which studies can be evaluated for their accuracy.

The association as a whole provides a channel for development of inter-industry market information.

Plant to Continue

Continental Motors Corp. plant at Garland, near Dallas, was labeled to produce aircraft engines as a part of the war program, will continue as a post-war industry, according to Jack Reice, president, who said the plant will employ about 1,800 workers.

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Air Industry Held Key to World Peace

Brookings Institution staff members urge Allied demands early's aviation and supporting industries and oil infrastructure plans to bulk any new war threat.

The most pressing method of controlling Germany and Japan after the war has in suppression of their aviation industry and supporting aluminum and oil industries. The Brookings Institution, published recently by Brookings Institution.

The joint investigation by the two staff members of the Brookings Institution examines the prospects for economic and military control of the two nations and arrives at the conclusion that this can be most effectively done by absolute and very early action on a commercial aviation and aircraft production. Moulton and Marlio also suggest restriction through control of aluminum ingot production and forbidding operation of synthetic oil plants.

Aluminum Oil Reserves.—The survey proposes that German oil reserves be stripped within a short period of time to remove this source of supply from the German orbit of control.

It would be simple, in the case of Germany, it is pointed out, to control aluminum ingot production without affecting aluminum.

Early control of Germany's oil supplies now come from synthetic plants, Moulton and Marlio estimate, and prohibition of these plants would cripple a war mobilization program, which Germany could not construct new plants inside of two years to the extent of war. They concede that stockpiling raw inputs would be possible, but such a stockpiling of synthetic plants would facilitate the control problem in the event of obvious war preparations.

Refining to Air Force.—The two authors—of aluminum and oil, would serve to restrict the possibilities of German aviation, the investigators say, but taken alone would not prevent development of a powerful air force. Similarly, restriction of warplane manufacturing would not be a complete safeguard, since military aviation could be quickly developed from a strong base in civil aviation.

It is suggested that because of this, Germany must be prevented



Helicopter Research Fund Proposed

C. L. Morris, American Society head, suggests \$10,000,000.

Helicopter engineering still has many difficult problems to solve and the industry needs sizable funds for research and development, according to C. L. Morris, president of the American Helicopter Society. Speaking at the first annual dinner of that group, held at New York's Ambassador Hotel on October 1, Mr. Morris suggested a research fund of \$10,000,000, presumably allocated to NASA so that the results would then be open to the entire industry. Mr. Morris noted that it "seems reasonable that the basic well-recognized research program funds should be granted by the government."

Mr. Skidmore and Col. H. Frank Gregory were awarded honorary fellowships in the society at the dinner and it was estimated that the membership now exceeds the 300 mark.

In his acceptance remarks, Mr. Skidmore declared that "no other engineering development has moved so fast as has the helicopter" and there was no doubt about the "great future" of the craft. America is leading in helicopter development, he said, adding that the industry must go through research and development, maintain this leadership.

Convair Needs Help For Sea Wolf Bomber

Production of the TBV-2, improved type of torpedo bomber, will require \$300 additional employment in the production plant of Consolidated Value Aircraft Corp.

The torpedo bomber, known as the Sea Wolf, will join the Grumman Avengers with the fleet. It carries a crew of four—pilot, navigator, bombardier and observer—and weighs approximately eight tons.

No production or performance figures have been released by the Navy. Disclosure of production was permitted by the Navy Bureau of Aeronautics when Rear Admiral DeWitt C. Ramsey, chief of the bureau, sent workers at the Allentown plant a message stating that no production cutbacks were contemplated for that plant. The message described the TBV-2 bombers as "essential weapons . . . urgently needed in the offensive against Japan."

WPB Maps Aircraft Advisory Division

New organization to handle civilian aviation and recovery problems.

Establishment of an Aircraft Industry Advisory Division within the War Production Board to handle civilian aircraft and recovery problems is under way as a result of a previously affirmative response from the industry to the proposal for such a division made by WPB Chairman J. A. Krug.

At the same time, Krug is re-organizing the Aircraft Production Board, of which he will be chairman. When Charles E. Wilson, who was chairman of the Aircraft Production Board left WPB, APB members voted to dissolve their unit and so recommended to WPB.

The proposal to dissolve APB on the theory that major production problems in the industry

had been solved has been termed premature in some quarters. Two members, in addition to Wilson, left the Board at the time the dissolution was voted—Laurel Geo. Willison & Koudas, who was assigned to head the Air Technical Service Command and T. F. Wright, in charge of Aircraft Reconstruction Administration.

Pact Goes New Assignments—Rear Admiral E. M. Pace, Jr., a member of the Board is also expected going as a new assignment to an entirely new board to be set up. It was understood the Board would not meet regularly, but on call of Chairman Krug, as aircraft production problems requiring board action arise.

Under the proposed set-up, APB will retain powers of scheduling, standardization, conservation and representation on the National Manpower Priorities Committee, and in addition probably take over CMP chairman, agency powers which have been jointly held by the Aircraft Scheduling Unit in

Detroit and the Aircraft Resources Control Office.

Acts to be Absorbed—AJCOC's functions and personnel probably will be absorbed by the new Aircraft Advisory Division of WPB and the Aircraft Scheduling Unit and the industry division will also be absorbed.

While dissolution of the Aircraft Production Board was recommended by its former members, this recommendation never was acted on.

APB was set up by WPB executive order and both WPB and many industry officials believe it should continue to function as long as the European phase of the war continues and until all aircraft requirements for the Pacific War have been met.

Oppose Move to Drop Arco From PEC

Plans which have been quickly projected for reorganization of the Strategic Production Executive Committee, with aircraft representation eliminated, are being opposed by both Army Air Force and Navy Bureau of Aeronautics.

Proposals were being drafted last week in WPB, Army, Navy and War Manpower Commission for a reorganization of the production Executive Committee which handles and coordinates production cut-backs. It was the first action taken in regard to this committee since J. A. Krug headed WPB. **Test of AAF, Navy Bureau Strength**—It was learned authoritatively that a definite movement was under way to drop Aircraft Resources Control Office from PEC representation. Whether it succeeds appeared to hinge on the strength of AAF and Bureau of Aeronautics opposition.

Coupled with the movement to drop aircraft representation on PEC was a growing tendency within PEC to reduce or remove priority status of the aircraft program, a tendency which again found vigorous AAF and Bureau of Aeronautics opposition.

Plane Plastic Plant

Plans for purchase of a 12-acre site at Anaheim, Calif., for a plastic plant for the production of plastic parts for aircraft has been disclosed by General Electric Co. No further plans were indicated. The plot is near both the Santa Fe and Union Pacific railroads in the Los Angeles area.

PRIVATE FLYING

Four-Year Non-Engineering Course In Aviation Opens at Miami U.

Three basic curricula established stress various phases of vocational training in aeronautics; 34 freshmen, including 6 war veterans, enroll.

By ALEXANDER MCKEY

Thirty-four freshmen college students, including six war veterans, studying at Miami University of World War II, have enrolled in the first class of Miami University's aeronautics course that falls at Oxford, Ohio, one of the first non-engineering, four-year college training programs in aeronautics to be offered in this country.

Three basic curricula established in the University's School of Business, School of Education, and College of Liberal Arts, emphasize various phases of vocational training for future usefulness within the aviation industry, but all three courses of study provide for laboratory field training at the rate of 10 hours a semester in addition to classroom work.

University Airport—The flight training is being conducted at the University's 180-acre airport, initially recently used in the War Training Service program. As a backlog of experience in flight training, the University has trained approximately 1,300 students in primary flight, beginning with a Civilian Pilot Training Program in 1938, and continuing with transfer of approximately 1,000 naval aviators after the WTS program took the place of the CPT program.

Head of the program, Prof. E. M. Albaugh, explains that Miami decided to concentrate on the non-engineering aspects of aviation education because of already well-established aeronautical engineering departments at nearby midwestern schools, and because of the recognized need for college training in pilot, administrative, executive and teaching positions.

Summer Courses—The four-year course is being offered following completion of an eight-weeks summer school aeronautics course for business men and special students, in which 50 students completed

study of civil air regulations and general service of aircraft and put in 10 hours of flight, all of these making solo flights. Four of these are continuing with a special night course during the winter term, of two hours a week, studying navigation and meteorology, and with an additional 10-hours of flight each semester. Most of this group is expected to have completed its educational requirements for a private license and its flight training, by next summer.

Enrollment in the aeronautics courses is currently limited by the inability of the University to get sufficient planes for training, but additional trainers are being

sought and it is expected that enrollment will be expanded considerably as this condition is remedied. George J. Winkler, who operates the Miami Airport, has ordered six of the first ten new Aviaton Model 7 tandem trainers to be built, as soon as relaxation of material restrictions permit production.

Flight Training—Flight training is being provided at the rate of \$10 an hour, or \$100 for twenty half-hour flight lessons each semester, and students wishing to take additional time may do so at their schedule's permit, at the same rate.

Among students enrolled in the four-year courses are two physically handicapped youths, unable to fly in dual flight, to learn as much as they can about actual flying experience through this method.

Freshman classroom courses are much the same for all three curricula, including physics, mathematics, elementary aeronautics, English, and chemistry. By the time the liberal arts students complete his four years, he will have had courses in astronomy, calculus, aerology, navigation, aircraft powerplants, neurophysiology, radio the-



PLAN CIVILIAN AVIATION GAS RATIONING

Prof. M. Laster, director of safety regulations for the Civil Aeronautics Administration, and W. L. Jack Nelson, CAA, discuss plans for allocation of 75- and 40-ounce gas rationing possible to civilian flyers which will be based now in the CAA News J. Laster said the program will be headed by the CAA. Now, acting director of CAA's general inspection division, Nelson added Assistant Secretary of Commerce W. A. M. Thurston in arranging transfer of the responsibility from the Office of Price Administration to the CAA.



GLOBE AIRCRAFT'S NEW SWIFT

The new Swift, to be manufactured by Globe Aircraft Corp., at Fort Worth, Texas, after the war, will embody new features, the company says. Among them are a bubble-type canopy giving 360 degree vision, retractable landing gear, flaps, control surfaces with dihedral in inboard and elevator and a roomy, deluxe cabin.

CAP for a small airport to be leased at about \$300 a year, with leviable expense of \$1,000, to be used for private flying and civilian pilot training.

- **Leland, Miss.**, CAP is taking leadership in a movement for construction of a municipal airport.
- **Meen, Ga.**, CAP unit has petitioned the City Council for a five-year operating agreement to use Herbert Smart Airport after Army demilitarizes use of the field.

There are in addition to CAP activities in developing the Redwood, Ore., airport, and the Corvallis Port Airpark near Nashville, Tenn., as reported in recent issues of AVIATION NEWS.

SMU Pilot Course

First step in offering civilian pilot training as an accredited part of the curriculum will be made in November by Southern Methodist University at Dallas, Texas. Ground training under the close direction of superintendents will be started with a six-semester-hour mathematics course.

► **Trained Service Pilots**—Southern Methodist for several years gave ground school and flight training through the Civilian Pilot Training Program and later trained Army and Navy pilots through War Training Service programs. No college credit was given, however.

The eventual plan is to give both ground and flight training to regular SMU students, according to Dr. David W. Riser, assistant professor of mathematics, who served as coordinator for the other aeronautics programs.

months for aviation use then at any previous time, so that allocations, particularly during the winter, should be ample for all legitimate uses. Additional allotments can be obtained by justification of requests for more fuel.

► **Restrictions**—Regulation 524, which governs distribution and use of aviation gasoline, prohibits barnstorming, sightseeing and pleasure flights, but permits use for pilot training, transportation of persons and cargo, maintenance of pilot skill and aircraft and aircraft engine worthiness, and commercial flying, including charter operations, crop dusting, aerial seeding, soil conservation, forest patrol, power line and pipe line inspection, police missions, and similar essential activities.

Airport operators and others are restricted from delivery of aviation gasoline except into airplane tanks and to engine test stands.

Plane Gas Ration System Revised

Fliers not required to file applications or turn in coupons after Nov. 1.

Individual plane owners or operators will not be required to surrender coupons for gasoline for their craft after Nov. 1, when Civil Aeronautics Administration rationing program goes into effect.

Allocation requests are now in the hands of airport operators and others continuously purchasing quantities of aviation gasoline. These requests were scheduled for return to the chief of the General Inspection Division of the CAA in Washington on Oct. 15 to enable issuance of ration checks prior to Nov. 1.

► **New System**—Under the new system, the Petroleum Administration for War has made an allotment of aviation gasoline to CAA for use in civil aircraft engines. This is in the form of a rationing check, deposited in Riggs National Bank in Washington. Checks will be turned by the CAA to holders of aviation gasoline, who must surrender a check to suppliers for any gasoline delivered after Nov. 1. The airport operator then will be required to keep a record of gasoline deliveries at his pumps. This record will be sent to the CAA each month. Owners of planes will not have to file applications or turn in ration evidence for gasoline.

Allocations will be made on the basis of deliveries in June, July and August of this year. More gasoline was delivered in those

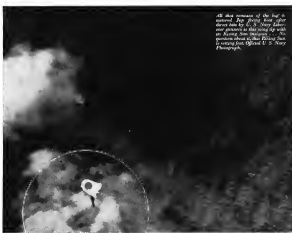
Physical Handicaps No Bar to Pilots

Regulations on flying certificates revised where disability does not prevent applicant from learning to operate plane safely.

Physical handicaps such as loss of limb, limitation of motion in joints and wasting of muscles, no longer need be a serious obstacle to obtaining a stunt or private pilot certificate, if the applicant can prove his ability to fly safely. T. F. Wright, Civil Aeronautics Administrator has announced.

A new Civil Air Regulation provision, permits a medical examiner to issue a student certificate, with a notation of the applicant's "structural" handicap, if he is otherwise qualified. His instructor determines when he is competent to solo, and when he has sufficient experience and is competent to pass flight test for a private license. The handicapped pilot then demonstrates his ability before a CAA flight inspector, and also may be required to perform other maneuvers which the inspector requests, in view of his particular disability.

► **Not Applicable to Active Diseases**—It is emphasized that the new ruling relates only to structural defects and not to conditions due to active diseases. The Administrator may limit the handicapped pilot to operation of certain types of planes or planes suitably modified. Under former regulations, applicants from handicapped persons required study by the CAA medi-



All that remains of the last 48 hours' fight for the night sky. The searchlight beam from the ship is seen in the foreground. The searchlight beam from the ship is seen in the foreground. The searchlight beam from the ship is seen in the foreground.

ONCE THERE WAS A JAP FLYING BOAT • •



It is nearly small pieces now — thanks to the deadly aim of an American gunner aboard one of our huge Consolidated Liberators. These men on the firing lines of the air are doing a magnificent job . . . and American industry is backing them up with the finest aircraft in the world.

Every one at GECO is proud that GECO manufacturers and fuel pumps on the newest great Liberators and other warplanes play a direct part, however small, in helping bring Victory closer.

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CHANDLER-EVANS CORPORATION SOUTH MERIDEN CONNECTICUT, U. S. A.

ed director in Washington, and a flight test by CAA inspector before the aircraft design is approved. In addition is the final flight check for private license. The new ruling is seen as another step in simplifying private flying regulations.

Georgia Governor For U. S. Air Control

Arnall, in speech at Moore Aviation Clinic, declares regulation is properly a federal function.

Georgia government and aviation leaders favor federal control of the air. This developed at the recent Georgia Aviation Clinic at Macon, Ga., where a Georgia State Aeronautics Association was formed to advance aviation and proper legislative action setting up a fulltime aeronautics directorship as part of the state government.

A resolution creating the Association sets out that it should seek to have set up a "permanent Bureau of Aeronautics empowered to exercise only such powers and to promulgate only such regulations as, while consistent with public safety and convenience, will not unduly hamper or impede the expansion of air industry and travel."

Arnall States Point—Gov. Elbert D. Arnall, in an address to the clinic, also emphasized this point. He declared his belief that air regulation was properly the province of the federal government and that he would do everything he could to see that Georgia does not set up barriers against expansion of aviation.

"I want Georgia to become the outstanding example of how a progressive state can foster the development of aviation," he said.

He said he thought the aviation industry should pay state taxes and aviation gasoline taxes, but that these revenues should be used to build up the industry within the state.

Committee Named—A five-man executive committee headed by Major Charles L. Bowden, of Macon, was elected to perfect organization of the State Aeronautics Association. The committee is to name a board of representatives from each of the ten congressional districts.

The Association will urge that the next legislature, meeting in January, establish a three-man Aeronautics Commission to be appointed by the Governor and as-

thorized to name a full-time, paid director.

Washle Supersedes Advisory Board—The Commission would supersede the present Aeronautics Advisory Board. The present Board was appointed by the Governor to advance aviation but it lacks authority beyond that to make recommendations to the Highway Department and the Governor.

The proposed Commission would be authorized to receive and disburse funds for airport construction, maintenance, and so on, and aviation gasoline tax revenues would be earmarked for it.

City Attorney Rules On Port Injunctions

City attorney of Wichita, Kan., has ruled that supercharges over long flying above cities because of the fear of falling airplanes is not grounds for seeking an injunction against an airport operating in proximity to residential areas. He said injunctions have not been granted by courts because of low altitude flying.

However, residents living close to airports can obtain injunctions on grounds that the field is a nuisance because of noise, wind or dust. "We have found no decisions from courts of last resort which would give the city such a right of action, however," he said.

Follows Protest—Rainer, came after a protest was filed by 300 citizens living near an airport alleging the planes taking off from the field badly disturbed the roofs of their homes. They had asked the city commission to enjoin the airport operator. The city attorney pointed out that the city ordinance prohibits flying over the city at less than 2,000 feet, except when gaining altitude on landings and take-offs.

"In case of a violation of the ordinance in this case, the violation would be made by a person taking off and landing at a private airport outside the city where the city has no jurisdiction to make an arrest, and the city has no authority to compel the owner of the airport to discontinue the name of the pilot or the student flying the plane."

Wichita's ordinance governing operation of airports over the city prohibits landings and takeoffs within the city limits, except at the municipal airport (which is six miles from the city proper but is within the city limits).

As Official Study—An Aviation

leaders who are sponsoring the proposed airports plan for Wichita are reviewing the city's attorney's ruling and the city ordinance with interest. Under the present ordinance, airports would not be possible unless they were constructed to be a part of the municipal airport. The fact that citizens near a small airport are complaining also is causing some worry. The airport is in question, however, has much shorter runways than those proposed for the airports.

Texas A. & M. Opens New Aviation Course

A two-year course in aviation operations management, established at the request of the industry, is being started this month at Texas A. & M. College to train airport and field base operations managers.

Training in aircraft and aircraft engine mechanics sufficient to prepare students for the Engine Mechanics examinations will be given, along with flight instruction, to qualify them for commercial instructor-pilot examinations, according to Dr. Howard W. Barlow, acting dean of engineering.

Related Studies Planned—In addition to required work, related studies will be given in applied mathematics, report writing, scheduling and plan reading, aviation ground school, airport management, airport layout, airport accounting.

The course qualifies under terms of the G. I. Bill making returning war veterans eligible for government benefits if they desire to take the course.

To Train Vets

Embrey-Riddle School of Aviation, Macon, Ga., has contracted with Veterans Administration and is ready to accommodate up to 500 veterans immediately in such technical courses as aircraft and engine mechanics.

To Help Disabled Men—Thousands of additional men will be trained after Germany and Japan fall, since the contract includes training both of disabled veterans under the rehabilitation program and service men under the G. I. Bill of Rights.

In its war-training program, Embrey-Riddle provided instruction for some 22,000 Army and Navy students in flight and technical subjects.



"I caught Hell in Heaven last night"

* Struggling through the grim night . . . one of the Axis bombers came . . . guns blazing. Bullets ate into my plane . . . a spark leaped to flame. Then, down . . . down in a screaming dive . . . smoke spewing out behind. The angels must have laughed me about . . . "Outh . . . Out!" Then my chute opened. Thank God for a good parachute!

* * * "Thank God for a good parachute!" Yes, a parachute is a man's last chance when his plane is shot from under him. Eagle's "Lao-haw" and precision sewing make that chance the best possible. Every Eagle Parachute next to perfect. Our expert craftsmen meet that challenge today. And perfection is our pledge for parachute products, tomorrow. Watch for the Eagle Wings . . . on selected aviation textile products for peacetime use when Victory is won.

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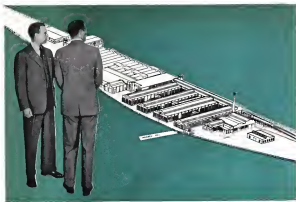
Our facilities are available for the cooperative development of new aviation textile products for peacetime use. Your inquiries are invited.



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174,000 SQUARE FEET of an entirely local plant. In the modern, one-shift Reynolds plant, aluminum produced in other Reynolds plants is cut into parts for today's warplane engines.

REYNOLDS ALUMINUM:

...now a new service, in a great new plant

THROUGHOUT the aircraft industry, Reynolds is known as the leading producer of sheet aluminum, fabricated aluminum parts and aluminum forgings for warplane production.

Now Reynolds rounds out the scope of its services with the addition of complete facilities for aluminum castings.

This latest expansion came in answer to a request for help. Aluminum alloy parts, high in physical properties, were needed for engines to power warplanes. Conventional hand-mold casting was used... but the real solution was found to be in the use of the permanent mold process—a tricky and difficult operation.

Reynolds found that superior quality alloy castings of this type were being produced in a plant in England. The steel technicians was sought out and borrowed. Reynolds now had the type of casting and the man—needed still, however, the right machines.

From this point on things moved faster and faster!



On May 25, 1944, a pilot plant was set up.

Site breaks later—The first casting was produced, a casting judged perfect by existing aircraft engine builders.

Site breaks later—and Reynolds is producing castings on a permanent mold line in a modern plant at Springfield, Mass.

But the story does not end here!

A PROMISE FOR TOMORROW

After the war the output of this plant can be increased five-fold. Five times as many people can be employed in its casting plants for producing automobiles, refrigerators, washing machines, vacuum cleaners, electric irons, and hundreds of other products.

Whatever your problem today—or to tomorrow—remember, if they concern aluminum sheets, fabricated parts, forgings or castings—pay attention to Reynolds' products, equipment and skill ready to help you! Reynolds Metals Company, General Offices, Richmond 19, Virginia; Aluminum Division, Louisville 1, Kentucky; Springfield, Mass. Sales Offices in 25 principal cities.



GEAR CASE, made from aluminum alloy, cast from permanent mold in the Reynolds Metals Company plant, Springfield, Mass.

THE AIR WAR

COMMENTARY

Jap Steel Industry Has 'Priority' In Missions of Superfortresses

Vulnerability of Nipponese heavy industry makes plants strategic target; seven recent missions were made against main enemy steel centers.

Not counting the shakedown mission against the railway shops and armament yards in Bangkok (June 5), seven of the eight B-29 missions dispatched to date have struck at Nipponese steel production. This emphasis on steel indicates a striking difference in the evaluation of targets in the Asiatic war, compared with the strategic air objectives in Germany—fighter aircraft, oil, ball-bearings. Reason for this is obvious. Important as steel is in all aspects of waging war, Germany's productive capacity of 24,000,000 tons a year, plus as much again acquired by conquest, made it impossible to strike the steel industry hard enough, often enough, to affect front-line battle strength.

Japan's New Heavy Industry—When Japan went to war with China in 1937 her industry was defective in two respects. It was light, with too many factories turning out textiles and consumer goods, and too few producing steel, machinery and chemicals. Japan, herself, was also poor in the raw materials of war—coal, iron and oil, with the possible exception of coal. It takes airplanes, ships, tanks and big guns, as well as railroads, to win a war, and for these steel is indispensable.

When Japan flung herself into war with the United States, her steel industry was producing less than 10,000,000 tons of steel per year compared with America's 60,000,000 tons. This in itself was a remarkable showing, and considering that Britain began her war with a steel capacity of only 15,000,000 tons, and that Russia has fought the biggest land war of all times for over three years with a capacity estimated at not over 12,000,000 tons, the Japanese warlords may have figured that they could hold back American and British forces while Japan de-

veloped the tremendous haul of raw materials gained through her rapid conquest of the Philippines and the Netherlands East Indies. **Plan that Failed**—The loss of Jap conquest was held at Guadalcanal in the Solomons, and just north of Port Moresby in New Guinea. If it hadn't held, Japan might have had time enough to develop her oil-fields gone and become a strong industrial power. Now her outer empire is gone, or very largely cut off, and Superfortresses of the Twentieth Air Force have started to smash in the steel industry concentrated on the highly industrialized Kyushu Island, in the neighborhood of Yawata and Nagasaki, and in Manchukuo, Japan's industrial section. These attacks have been in western China were augmented by even greater blows from the south as soon as air bases with nearby harbors can be prepared, as repeatedly indicated by official statements.

Yawata Hit First—First blow of the big B-29s was struck against the Imperial Iron and Steel Works at Yawata, the largest steel mills in Asia and source of 20 per cent of Japan's steel production. It was on June 15. It was attacked again the night of July 7, and a third time in a smashing day and night coordinated attack Aug. 14.

Superior targets included the coke ovens, plants, blast furnaces, electric power plant, open hearth furnaces, foundry, etc. The nearby industrial city of Nagasaki was attacked by the Superfortresses on Aug. 10, targets including Mitsubishi Steel Works and the huge shipyards. Shipping is Japan's Achilles' heel, and thus gives the air offensive against steel a special significance.

First Plant in Puppet State—Japan has realized her vulnerability to air attack and has been de-

centralizing much of her industry, moving it away from crowded cities. This is difficult in the case of the steel industry, and part of the answer was the development of Manchuria. With their deep military penetration of North China the Nipponese warlords figured they had protected their puppet state Manchukuo from bombing. Superfortress attacks have stabled them awake to reality.

First blow against the big Showa Steel Works at Anshan was July 29, a daylight attack with good results. Another daylight attack by a "large task force of B-29 Superfortresses" was carried out against Anshan Sept. 8, again with results reported "good," and only one aircraft missing. Sept. 27, "a large force of B-29 Superfortresses" (more than 100 aircraft) struck for the third time at the Showa Works, through a heavy cloud cover.

It will be noted that the B-29's are universal bombers, equipped for night missions, daylight precision missions, and for bombing through overcast. Showa Steel Works, Anshan, is located only 100 miles from Japan's steel centers, as they do not depend on iron ore from overseas as do the steel mills at Yawata, Osaka, Tokyo, etc. Crippling Anshan is a strategic blow of the first order.

—NAVIGATOR



NEW GOGGLES AND MASK:

Adapted of a new type of improved flying goggles, the B-29 standard equipment for the AAF, emancipated from Wright Field, is believed to have solved many of the difficulties experienced by aviators with earlier types of goggles. Equipped with a one-piece plastic lens fitted into a special nose arch, the new goggles fit perfectly with the new oxygen equipment.

PERSONNEL

Joseph D. Baylan has been appointed regional cargo traffic manager for American Airlines for a number of years. Baylan was connected with sales and service departments of major express companies prior to his appointment with American Airlines. He was employed as an aviation with the U. S. Army Transport Corps at New York. His headquarters will be at the Airline Terminal Building in New York.

Allen E. Strasser has been named controller for Curtiss-Wright Airplane Division Research Laboratories to supervise the accounting and financial matters of the laboratory. At the outbreak of war, Strasser assisted in development of U. S. Caribbean air bases.

Clarence L. Bagel, former General Electric assistant district auditor in New York, and president and executive manager of the New York Credit Union Association, has been elected secretary and assistant treasurer of Luscombe Airplane Corp., Trenton, N. J., which manufactures a line of all-metal light airplanes and metal parts for military aircraft.

Kenneth R. MacDonald is the head of the new Aviation Department of the San Francisco Chamber of Commerce. The new department has been established as part of a program to make San Francisco the passenger and freight air terminal of the coast. MacDonald has been working on cooperative coordination work for the Aircraft War Production Council, Inc., West Coast. For the past year and a half, he will work in cooperation with Walter A. Babble, manager of the transportation department, in air transport regulatory and rule making matters. The Bay Area Aviation Committee with which MacDonald will work, was organized by the Chamber of Commerce.

Henry K. Mackery has been named assistant to the president of United Aircraft Corp. Mackery joined the



public relations staff of United in May, 1943, and was named assistant director of advertising and publicity a year ago. He maintained public relations office in New York prior to joining United. Mackery was with Associated Press for eleven years, during which he was chief of the New Jersey Bureau.

Joel Whitney Gihon, director and manager of Ryan Aeronautical Institute, was named chairman of the San Diego section of The Institute of Aeronautical Sciences as its general business meeting, succeeding Kenneth G. Soud. Whitney was formerly vice-chairman of the local chapter of the institute. He has been with Ryan for four years and previously was a technical instructor at the Army Air Forces aviation center for Ryan School's primary pilot training program. Other officers elected include: Jack Mason, vice chairman; Francis Schuchardt, treasurer; Francis Thornburg, recording secretary; and Charles L. Blake, corresponding secretary, all of Consolidated Vultee Aircraft Corp.'s engineering department.

Norman W. Storey and R. L. Sullivan have been appointed staff assistants to the Miami district manager of Consolidated Vultee Aircraft Corp. Storey, a former member of the contract department staff, will be in charge of contract negotiations, while Sullivan, who is chief development sales engineer, will

report directly to the division works manager.

Aurilio Trumbull has been made resident representative of United Air Lines at the Douglas Aircraft Corp. in Santa Monica. Trumbull has been in the aircraft-sales department of United since 1938. Trumbull is supervising conversion of DC-3's to commercial use and will assist in United's DC-4 and DC-4C programs. He also is supervising Aeronautical Radio at Douglas.

The council of the Royal Aeronautical Society has awarded to Air Commodore Frank Whittle, a fellow of the society, its gold medal for inventing jet propulsion. This medal is the highest honor the council can bestow. It has been awarded on seven previous occasions in 1898 to the Wright brothers; in 1910 to Prof. Octave Chanute; in 1915 to Prof. Sirin and E. T. Sack; in 1924 to Dr. Langkrohn; in 1937 to Prof. Prandtl; in 1938 to the Richard Glazebrook; and in 1937 to Juan de la Cierva, posthumously.

B. T. Chas. is now assistant general traffic manager and district traffic manager for Chicago and Southern.



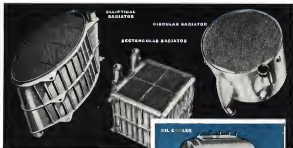
Andreasia Chas

For years, he resigned and will be relieved by George J. Andros, former American Airlines district traffic manager in Chicago and Southern at Memphis, has been promoted to the position of general auditor for the company. He is succeeded by David J. Callahan, former manager of United's overhaul.

J. G. Holland (photo) has been appointed general auditor for Continental Airlines and the Continental-Douglas modification center. He will head the contract administration section of the modification center and handle legal matters for both the modification center and the air line. Holland has been a practicing attorney in Denver since 1938 and will fill the vacancy left by the resignation of Terrell Drinkwater, who was also vice president of Continental, and who has now joined American Airlines.

modification center and the air line. Holland has been a practicing attorney in Denver since 1938 and will fill the vacancy left by the resignation of Terrell Drinkwater, who was also vice president of Continental, and who has now joined American Airlines.

HOW THIN ALUMINUM TUBING IMPROVES HEAT TRANSFER UNITS



...and how Clifford's aluminum brazing makes it possible

Today, several famous types of planes of the USAAF are flying higher, farther and faster because of the Clifford Feather-Weight Oil Cooler and Coolant Radiators pictured on this page. Their all-aluminum structure saves 15% the weight of their copper predecessors and throws in longer life as an extra dividend.

When heat transfer units call for lighter weight and more "puls" than you know specify Hydrex seamless aluminum tubing... bonded intimately to header plates... by all-aluminum alloy...



brazed by Clifford's exclusive patented method. For, Clifford Feather-Weight Heat Transfer Units provide, for the first time, greater resistance to temperature, pressure and vibration in elliptical and oblong designs as well as in conventional circular cross-sections.



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New Light-weight Ranger Engine Presages Plane Design Changes

12-cylinder V-type power plant developed for post-war commercial use is believed particularly adaptable to feeder line operations.

A new light-weight aircraft engine, aimed at the post-war commercial field with feeder line operations especially in mind, has been developed by Ranger Aircraft Engine Division of Fairchild in a move that may forecast new designs of aircraft construction through the adaptability of the power plant.

The 12-cylinder V-type engine

is air cooled and weighs but 870 pounds, complete with standard accessories. It develops 188 hp for take-off with 160-horsepower standard fuel, nearly one horsepower for each cubic inch displacement.

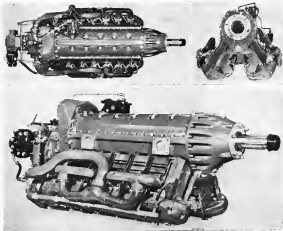
Engine Invented—Like other Ranger engines, it is inverted, that is, the cylinders extend below the crankshaft rather than above, as in conventional inline types. The

engine has an overall height of 31.11 inches; it is 34.68 inches long and 33.38 inches wide.

Harold H. Budd, Fairchild vice-president and general manager of Ranger Division, said the new engine will be ready for post-war jobs as soon as the war ends, since Ranger has plans, tools and personnel to produce the commercial model without long delay during reconversion.

Aluminum Cooling Fans—Cooling characteristics are enhanced by aluminum cooling fans chemically bonded to the steel cylinder barrels by use of the Al-Pin process, a recent Fairchild development. Cooling on this engine is accomplished by the pressure of air entering a scoop and directed around the cylinders by an arrangement of baffles which create turbulence in the air flowing around the cylinders.

Budd explained that a minimum of air is required for successful cooling and this fact, coupled with the compactness of



The Ranger Engine: Upper left, top view; upper right, front view; below, three-quarter front.



Pattern indication gives the pilot a visual "picture" of his attitude at all times, regardless of the degree of bank, climb, or dive.



No angular limitations! The Sperry Attitude Gyro indicates pitch and bank without any angular limitations!



No caging! Because there are no angular limitations, the instrument never has to be caged . . . not even in acrobatic!



Attitude Unlimited!

New Sperry Attitude Gyro provides pattern indication . . . has no angular limits . . . needs no caging!

WHY THE NEW Sperry Attitude Gyro indicates a pilot can, for the first time, loop, roll, dive, climb, or fly at any angle with visibility zero, and still always know the attitude of his plane relative to the earth.

The spherical dial is marked to provide the same "pattern" type of indication whether by daylight or by any artificial light . . . a single glance tells the story.

The suspension for the spherical dial of this new Sperry instrument allows full 360° freedom of indication in the

roll and pitch axes of the airplane.

A small gyro operates at 33,500 r.p.m., stabilizes the sphere and keeps it even in relation to the earth's surface. The airplane actually maneuvers around the indicating sphere.

The Sperry Attitude Gyro makes instrument flying safer, easier, and facilitates maneuvers and acrobatic training.

With it there is no possibility of the gyro tumbling, even in extremely turbulent air. And, of course, its advantages in working are obvious.

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Highways of the Skies

People will fly!

And a lot of fast express will take to the air tomorrow.

To guide this vast new air traffic safely from ground to ground will require new conceptions of instrument landing, ranging and marking equipment. Federal has had long experience in making aerial navigation equipment. Now, at the great Federal laboratories, still newer and better means of three dimensional traffic control are being developed and perfected.

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Federal designs and manufactures a wide range of precision instruments—both in a great variety of frequency ranges and power levels for use in the aircraft, ground-to-air, radio telephone and telegraph, marine and mobile applications.

design, makes the engine suitable for submerged installations where the engine is confined within the structure of the wing or fuselage rather than extended from the nose or leading edge of the wing. **Five Major Units**—Basically, the new engine is composed of five major units, the crankcase and cylinders, the right and left crankshafts, the nose section and rear section. In disassembling, all can be removed by a single mechanic without use of a chain hoist and with a minimum of time and special tools.

Budd and the engine will be available with two propeller reduction gear ratios; 1.85 to 1 and 2.25 to 1. Planetary reduction gears are employed. At 2600 rpm for take-off, the propeller shaft speed is reduced to 1500 by the first ratio and 1225 by the second.

Power sections are made of aluminum alloy. The six-cylinder crankshaft is dynamically balanced and connecting rods are of the fork and blade type. Overhead camshafts operate the valve mechanisms on each bank of cylinders.

Lubrication is by high pressure oil injection. Pressure lubrication is of the dry sump type. Oil is transferred through drilled passages. The hollow accessory drive shaft is the result of galling. Splash and spray lubricates the cylinder walls, pistons and piston pins. Valve mechanisms are pressure lubricated.

U. S. Sets Minimum On Aluminum Scrap

SWPA Chief Clayton establishes price floor to prevent demoralization of scrap.

Heavy surpluses of aircraft and other aluminum and lack of a market have resulted in establishment of price floors under government-owned scrap. The action, taken by Surplus War Property Administrator W. L. Clayton, was designed to prevent demoralization of the aluminum scrap market.

As disclosed in *Airpower News* [Oct. 5, Page 41], only 15 percent of aircraft aluminum excess stocks has been moved into other channels, and it was anticipated that aluminum would be withdrawn from the warhousing plan.

May Go to Metals Reserve Co.—Aluminum scrap that cannot be sold at minimum prices will be turned over to the Metals Reserve Co., Reconstruction Finance Corp. subsidiary, for storage.

The schedule of prices for all segregated solids, not cents a pound, all mixed solids, 5 cents, and scrap solids mixed with foreign materials, four cents, obsolete aircraft to be scrapped, and sub-assemblies completed or partly completed, two and one-half cents, and wrecked aircraft, one and one-quarter cents a pound. The minimum prices do not apply to lots of 10,000 pounds or less, to

bearings or turnings, or to aluminum scrap in contracts where the claim against the government is less than \$10,000.

Reverse-thrust Prop In Quantity Output

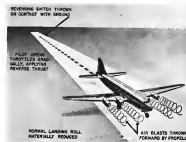
Units produced by C-W for four-engine Army planes.

Use of reverse-thrust propellers has passed from the experimental stage and propellers of this type are now in quantity production by the Curtiss-Wright Corp. for use on a large four-engine Army plane.

Tests with the aerodynamic basic principle of the reverse-thrust propeller on a four-engine plane showed use of thrust from two propellers was equally as effective as normal application of the wheel brakes. Curtiss engineers predicted use of the principle on commercial planes after the war will permit lightening of the wheel brakes on aircraft equipped with the new type propellers.

Angles of Blades Changed—Braking by reverse thrust is accomplished by changing angles of the propeller blades to negative pitch to generate the backward thrust. It does not reverse the rotation of the blades.

Use of the propeller in combination with brakes results in a great reduction of the landing run. Declaration, engineers report, is exceptionally smooth and its application to commercial planes should increase passenger comfort in landing operations. The system reduces taxiing time after landing, increases maneuverability in the ground and reduces tire wear.



Air-Brake Propeller Use The aircraft sketch at left illustrates the principle of aerodynamic braking now out of the test stage and scheduled for use on a four-engine Army plane. The sketch at right shows the

propeller blade pitch change by which reverse thrust is obtained. Backward thrust is developed by changing the angles of the propeller blades to negative pitch.



Model of New Beaching Gear: Lieut. Frank J. Walters has constructed this working model of the beaching installation for large flying boats at Naval Air Station, Alameda River, Fla. In background is the model of a Martin Mariner mounted on cradle car ready for beaching. Foreground shows turntable type approach section.

New Method Eases Seaplane Beaching

System devised by Navy lieutenant simplifies handling of flying boats of *Martins* and *Mariners* class.

Details of an improved method of beaching large seaplanes (AVIATION NEWS, Oct. 5, page 87) have been disclosed by Glenn I. Martin Co. The method, devised by Lieut. Frank J. Walters, USN, is one of a series of new systems being developed to handle flying boats of the PBM Mariner and JRM Mariner class quickly and efficiently.

Installation consists mainly of a ferry boat slip mounted on floats, a set of guides, a cradle car and rails. A turntable approach section may be substituted for the ferry slip. Both turntable and slip conform automatically to the tide and are adjusted to wind direction by means of winches. Guides are adjustable in various sizes of seaplanes, making it possible to use the same installation for PBMs and the Mars.

Beaching Gear Eliminated:—The whole beaching operation is han-

dled by the pilot and one or two men on the beaching machinery so that use of men in the water is reduced; unnecessary and heavy beaching gear fittings can be eliminated from flying boats.

The flying boat approaches the beaching installation just as it does a beaching buoy. It is aligned with the guides. When the plane is taxed and aligned over the cradle car, a hook suspended from the tassel hatch engages an extension on the rear of the cradle car. As plane and car move forward between the guides, the car ascends until the plane rests in the cradle. The plane then can be moved to loading platforms or maintenance hangars. For launching, the hook is disengaged and the plane taxis into the water, the car dropping away as the flying boat becomes waterborne.

The slipways also can be used as aircraft docks.

10,000th Propeller

Canada recently delivered the 10,000th propeller from Canadian Propellers, Ltd., subsidiary of Canadian Pratt & Whitney Aircraft, Ltd., Montreal. Manufactured by Sully Murray C. D. Howe

and propeller production would be reduced in keeping with the curtailment of aircraft production in Canada, which covers all types from training planes to combat aircraft.

Fisher Body's P-75 Contract Terminates

Halting of work on new secret fighter soon at awaiting AAF commitment on few types of plans.

Program of Army Air Forces for concentration on a few types of planes is stressed further by termination of contracts for the new secret fighter which has been in the works at Fisher Body Cleveland Aircraft Division for some time.

Details of the plane, known as the P-75, are still restricted. It was powered with the new Allison liquid-cooled X engine and was the first to be completed, designed and built by an automotive manufacturer.

The discontinuance, forecast recently by the news, was interpreted in some quarters as being due to superior output and performance of models which have been produced by the old-line aircraft companies.

Four Of Production Line:—Fisher was given the P-75 contract in July, 1943, and the first plane, designed by Don Berlin, was assembled by hand and the first experimental model flown within about four months, according to company officials.

AAF plans to continue experimental development of the fighter and the Fisher plant will continue other high priority Army aircraft work.

Shift to B-29 Assemblies:—About 40 percent of the production workers at the Fisher plant were assigned to the P-75 project. Some of the workers thus relieved will be employed on B-29 Superfortress assemblies such as outboard wings and tail stabilizers, vertical and dorsal fins and wing tips.

The plant will reduce its work week from 54 to 48 hours and likewise stop hiring. Turnover recently has been running nearly 1,000 a month. The combination of new work, transfer to the B-29 and curtailment of hiring is expected to absorb nearly all workers released by cancellation of the P-75 contract.

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WICHITA, KANSAS, U.S.A.

Halting Tendencies Revealed In Airlines After Long Rise

Prices of air transport equities pushed upward to points where yields are extremely low, based more on potential earning power than current operations.

Air transport shares are showing halting tendencies after one of the most remarkable upward moves in the market. Doubt has begun to appear among investors who sought peace stocks as a hedge against ephemeral war profits and post-war conversion dangers.

Airline equities, along with other peace type securities, have been pushed to the point where yields are staggeringly low. Most investors, of course, have always been to attain profits through attempting to capitalize on the future. This necessarily means overlooking current income and shifting hopes in capital appreciation of equities involved. This in turn is predicated on the potential earning power the enterprise is believed capable of generating. And this evaluation is susceptible to highly fluctuating services on the part of speculators and investors alike.

War Gains Achieved—Airline shares have been in the forefront of the recent profit-making boom. They have been regarded as endowed with special qualities not present in such industries with a strict war flavor. But it must be remembered that the air carriers have also achieved substantial "war" profits. High earnings of recent years can be attributed, directly or indirectly, to factors arising from the war effort. Accordingly, values and earnings derived from a war economy would no longer exist during peace periods. Furthermore, a high plateau of profits now being recorded may represent a time period difficult to maintain in the immediate post-war years. This will make subsequent earnings look inferior if only by comparison.

Dividend payments among the airlines have been sporadic. Only American and Pan American can be said to have distributed regular dividends for a period of years. United and North-

west, and perhaps Transil, are in process of building an unbroken series of dividend payments. Delta Air Corp. has a very regular dividend record but is not considered here because of the relative lack of public interest in its stock.

Low Dividend Yields—Potentially low yields prevail—ranging from 1.87 percent for United to 2.64 percent for Pan American. Now, any upward price rise will shrink yields to abysmally low levels. The premium investors appear to be paying for peace shares above their wartime values may be construed to represent the market's belief that peace will more than compensate for the loss of war income. This reasoning may prove fallacious.

According to recognized group averages, air transport shares have advanced 293 percent from the 1942 lows to the 1944 highs. This compares with a rise of only 21 percent for railroad shares during the same period. Obviously, investors have been willing to pay 123 percent more for one type of transportation media over another simply in the hope of participating in the growth and speculative profits of the future.

Price-Earning Ratio—This evaluation of the future is indicated by the high airline price-earnings ratios shown in the table. For instance, Transil's highest earnings are capitalized 23.5 times. Directly, sound, conservative appraisal of securities would capitalize earnings at about ten times. And considerable validity of operations would have to be present.

That airline shares have appeared to falter of late is indicated by the accompanying charts. After gaining 147 percent since the first of the year or 87 percent better than the general market, the carrier group has begun to turn downward as a relative base. As a matter of related interest, the aircraft aver-

age while gaining but 11 percent since the outset of the year and about 3 percent better than the market as a whole, has shown strong upward tendencies of late (Aeronca News—Oct. 8, 1944).

It is quite likely that investors who formerly looked at the air transport industry through five or ten year telescopes have found it more realistic to substitute a magnifying lens for the immediate group of peace.

Expansion—Large scale expansion is planned by all carriers. Placing of aircraft orders by the major lines is only one manifestation of the heavy demands to be made for new capital resources to finance the industry's expansion.

As new routes are opened and other facilities added, operating costs will tend to rise and outstanding revenues. The wartime boom of high loads in relation to available equipment will no longer exist. Instead, the long, unfill hiatus to build volume traffic on all routes appears well in prospect. Moreover, more intensive competitive conditions will prevail among the airlines themselves now that parallel lines run where once existed before. Further, the railroads may prove very formidable as a competitive factor and their resurgence will prove costly to the air carriers.

Post-War Profit Margin—Initially, the airlines may find they are in costly operations once war restrictions permit widespread expansion. It is likely, however, that after all this expansion is successfully launched, subsequent operations can prove very profitable. The fact remains, nevertheless, that during the first few peace years airline earnings may tend to chafe much of the service they now extend on the part of investors for the distant outlook of the industry.

No special immunity appears to be offered airline stocks as a peace group in the market place. During the July-November, 1943, period, the airline shares fell along with the war babies. Similar downward action on the part of peace groups developed when the London market declined in September-November of 1941. It is in the current downward move of August-September of this year, the London and New York markets were no respecter of airline or other peace type securities. Clearly, then, air carrier values will be determined more strictly on a basis of what the industry may be able to show in tangible earnings and results.

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TRANSPORT

Return of Last 26 Planes Gives Lines More Seats Than Before Takeover

New allotment increases capacity to 6,305 passengers, compared with 6,145 before U. S. requisitioned craft, as result of return of larger DC-3 type aircraft in place of smaller Lockheed.

The airlines came out of their final allocation of returned planes under the 300 ceiling last week with more seating capacity than they had when the move took over 166 of their aircraft in 1942. Industry estimates are that the 300, reached with a new allotment of 30 ships of the DC-3 type, will give the lines a capacity of 6,305 seats, compared with 6,145 before the takeover. This is accounted for in part by return of some Boeing 387 Stratoforers and also allocation of DC-3s to some of the lines that previously operated smaller Lockheed planes.

Allocations—The new allocations are divided as follows: United Air Lines, Eastern Air Lines and TWA, five each; American Airlines, four; Pan American-Central Airlines, three; Northwest Airlines, Delta Air Lines, Western Air Lines and Bessair Airways, one each.

Total equipment now operating or being prepared for operation by the airlines thus stands at 275 Douglas DC-3s, 16 Lockheed Stratoforers, two Boeing 387s, and two Douglas DC-7s. At the time of the takeover, the lines were operating 251 DC-3s, 13 DC-7s, 13 Lockheeders, 24 Electras, and 39 Boeing 347-1s. Stratoforers that had been in military service already had gone to the military when the big May, 1942, takeover took place.

Despite the fact that a few more seats will be available under the 300 ceiling than there were when the lines were operating 304 planes, industry observers were quick to point out that equivalent facility of operation is not a corollary. Particularly among the smaller lines, seating capacity is not everything, although the war has brought fuller plane utilization. Obviously a line with its seating capacity divided among

half a dozen planes could provide more service than if it operated only two planes with the same total capacity.

Costing Expected to Stand—How soon all the planes that have been allocated will be in actual operation cannot be forecast with accuracy. The lines had 252 ships loaned and in operation Sept. 1. Others have been and are being recovered to commercial use after their military service.

Doubt was expressed in some quarters that the Army would recommend lifting of the 300 ceiling, set by White House executive order, until reconversion had been finished or nearly so. The airlines have answered argu-

ments that reconversion was slow, however, by pointing out that in many instances war priorities have caused difficulties in release of materials or man-hours to do the job. Much of the equipment originally in the planes has been lost, with the result that the airlines had to purchase new equipment.

Allocations Expected to Continue—Generally it was felt, however, that as more transport planes become available, the reconversion will be made so that the ceiling be lifted so further allocations may be made to the airlines. That the allocation system will continue during the period of short supply of equipment appeared a certainty.

Under the surplus disposal system, however, allocations now will be handled through the Surplus War Property Administration and an inter-departmental working committee on which the Civil Aeronautics Board is represented with other agencies. The Board's interest in seeing that all possible equipment be made available to the carriers therefore is expected to continue as a prime factor in future allocations.

PCA Shuffles Operations

Pennsylvania-Central Airlines is reorganizing its operations department into four main divisions for flight operations, ground opera-

tions, personnel and medical. Vice-President J. H. Carmichael continues as overall head of operations. J. A. Brooks superintends the flight division, R. W. Hardesty grounds operations, J. T. Barker the personnel division, and Dr. L. G. Lederer continues as chief of the medical division.

Australia, N. Z. Ask Airline to America

Immediate opening of civilian air transport service, using military planes during wartime, is proposed.

Spurred by the northwest movement of Air Transport Command operations in the Southwest Pacific, away from their bases in Australia and New Zealand, are recommendations in Canberra for the establishment of a civil air transport service between Australia and North America.

The ATC swing to the south has followed the heels of the Pacific Australian Air Minister A. Drakeford declared at Canberra that the proposed service would see military transport aircraft during the war, and thus pave the way for a commercial post-war operation between Australia and New Zealand, the United States and Canada.

Link Britain and Dominions—The service would include an intra-British Commonwealth Air Service to provide transport between Great Britain and the Dominions and India, as already discussed and to be further discussed at the British Commonwealth Air Conference Oct. 23 at Montreal.

At that conference Canada will suggest maximum protection of small countries and incentives for efficient operation of international air routes. Rewards for efficiency of operation under the Canadian revised plan, which likely will be submitted in November at the Washington international air conference also, are based on operating figures. This airlines showing the greatest efficiency in payload as a predetermined ratio on international services would be allowed to increase such services if desired. The Canadian delegates will include protection of small nations in the sphere of international aviation and any international regulatory body that may be set up.

Service to Be Doubled—Air Minister Drakeford revealed that Australia and New Zealand will re-establish as soon as possible full



WESTERN'S NEW OFFICES:

Western Air Lines' new offices, in San Francisco, feature the Indian motif. Specially designed leather tufted leather chairs are a feature. Wood carvings of Indian heads, Western's symbol, are on the walls, and chairs are upholstered in Indian design.

passenger, mail and air freight service between their countries and Great Britain with a frequency at least double that existing before the war. British aircraft will be used as far as possible.

Intra-British Commonwealth air services are to be established only if an internationally-operated service is not established. The Australian government states The Australians advocate an international air authority to operate and own all international air routes.

Return Coronados

American Export Airlines and Pan American Airways have been requested to return two PRY-3s each to the Navy for Pacific operations.

The Navy's directive said needs in the Pacific are such as to warrant curtailment by both carriers of their operation under Naval Air Transport Service in the Atlantic Theater. Apparently the supply situation is being handled adequately there by surface craft and the Army Transport Command.

There was no Navy statement that the four aircraft will be replaced soon. Other ships of the same type, however, remain in the Atlantic for trans-Atlantic operation.

TWA Asks Local Service on Coast

TWA last week asked the Civil Aeronautics Board to amend its certificate for AM 27 to remove the restriction against serving San Francisco except on flights originating at or out of Albuquerque, N. M.

The TWA application was filed after the Board had issued an economic regulation which will prohibit TWA layovers at Los Angeles of more than 45 minutes for flights serving San Francisco.

The restriction in TWA's certificate is deemed to prevent the carrier from offering local service between Los Angeles and San Francisco. The application for the removal of this restriction, therefore, has the effect of asking authority to provide local service between these points.

Fly Wounded Home

About 45 percent of all combat casualties returning from overseas are flown home by Air Transport Command's C-54s, at the rate of 4,000 a month. Maj. Gen. David N. W. Grant, AAF air surgeon, said in a Louisville speech



PAA MAPS COMPETITION:

Pan American Airways bases on the basis of its own studies that post-war competition from British Airways in this hemisphere may be expected over the routes outlined in the map above. This boundaries shown on the chart are approximate and have no official recognition. Map was introduced as part of PAA's American's presentation in the Latin American proceedings before the CAB.

Realistic Talk on Personal Flying

NO SINGLE ARTICLE in a mass circulation magazine in recent years has aroused more favorable comment in private flying circles than the *Evening Post's* brutally realistic diary Oct. 7 of a lightplane pilot's 2800-mile round trip, with a passenger, from New York to New Orleans.

The southbound flight alone required 5 1/2 days. The writer had spent 39 hours and 55 minutes in the air at the end of his complete tour, and 39 hours and 50 more minutes had been invested in waiting for weather. Another 13 hours and 14 minutes went into travel between towns and their airports, with 17 hours and five minutes spent in necessary stops. An entire flying day was lost because airports are too distant.

Thousands of enthusiastic potential plane owners who do not have access to aviation periodicals will be disillusioned by the calm rental of expense, delays, red tape, discomfort and exasperation that is an old story to every private pilot who flies cross-country.

Such disillusion is good. There should be more of it. Private flying still has no place for the effete pilot who is not ready to do his share of pioneering. There have been many futuristic commentaries on how private flying will overcome its obstacles. But few of these have put over dramatically and effectively to the public exactly why we need more airports, why they must be close-in, why we need thousands of roof signs, cheaper pilot training, simpler regulations, more economical and safer lightplanes, lower insurance,

maintenance, depreciation and service costs.

Few even of aviation's best friends have been willing to let the public in on the complications of becoming a pilot and plane owner. Those who were most interested went through the grim process by sheer determination. The others dropped out exasperated and disillusioned because they were never briefed for their mission.

Disseminating the truth will be a spur to insurance men, instructors, local and Federal government and Congressional leaders who must fight for airports. It will give a push to airport management and service people, and those who frame our regulations.

It should also be an incentive for the manufacturing industry. Weather is one of the most baffling problems of the future. The *Saturday Evening Post* writer contends that weather cannot be helped. Weather itself can't be. But some regulations for weather flying can be, and the Personal Aircraft Council of the Chamber has already recommended that weather limits be lowered off-aways. This is a step. Lightplanes may never be able to plow blindly through sky sludge, but with the progress that has been made in this war on radar and navigation instruments, it is impossible to believe that industry will not develop some economical, light-weight aids which will further widen the private flyer's range.

Personal flying has enormous possibilities, many of them necessarily in the future. Plan talk about today's realities is healthy. There should be more of it.

The Role of Civil Air Patrol

THE CIVIL AIR PATROL last week released an official memorandum signed by General Marshall which should put an end to rumors about the status and activities of CAP personnel. The patrol has been subjected to wide speculation both in aviation quarters and by the public.

Gen. Marshall emphasizes that as an official AAF auxiliary, CAP's purpose remains one of organizing public-spirited citizens of civil aviation into a volunteer, semi-military organization; to give them supplementary training in military and allied subjects, except for flight training, and to supervise the utilization of their skills and equipment in the war effort.

The Army's Chief of Staff emphasizes that CAP is flying low targets for the First and Fourth Air

Forces, in operating a national search system for missing aircraft, in recruiting air cadets and applicants for the Women's Army Corps and is directing preflight training of 15, 18, and 17 year old CAP cadets for possible future military service or in civil aviation. It is performing other emergency missions for Federal and state governments and industry. Although required to wear official uniforms while on duty, personnel are not paid for their services, except for some expense allowances, and are not deferred from service with the armed forces.

Those who know what CAP has done, and continues to do, can have few misgivings about CAP's present activities or little fear of its usurping any rights of civil aviation.

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